

REMARKS

Applicants respectfully traverse the restriction requirement on the grounds that the inventions of Groups I-III are not distinct and that search and examination of all the claims would not be unduly burdensome.

The claims of Group I, claims 1 and 41-55, are drawn to a device and method of forming gas-enriched fluid using a mixer. In the method of claim 41, a mixer is provided having an internal mixing chamber with first and second inlets, fluid is delivered to the mixing chamber through the first inlet and a second fluid having a liquid phase supersaturated with a gas is delivered through the second inlet to mix and form the gas-enriched fluid. Additional claims within Group I dependent on claim 41 provide further limitations to the method, such as, that the first fluid is blood (claim 47), the mixing chamber is pressurizable (claim 55), and the first inlet is arranged to provide vortical flow in the mixing chamber (claim 51).

The claims of Group II, claim 56-67 are directed to the same invention as the claims of Group I, but with a different combination of the same limitations of the claims of Group I. Claim 56 in Group II, for instance, is an independent claim which incorporates many of the same limitations of the independent and dependent claims of Group I. Claim 56 is drawn to a method for mixing blood (claim 47) and a gas-supersaturated fluid (claim 41) in which the mixing chamber is pressurizable (claim 55) and a first inlet is arranged to create a vortical flow within the mixing chamber (claim 51). Additional claims in Group II incorporate the same limitations as other claims in Group I, such as: in claim 57, the gas-supersaturated fluid is a physiological solution isotonic to blood (claim 45); in claim 58, the gas-supersaturated fluid is physiologic saline (claim 46); in claim 59, the gas comprises oxygen (claim 44); and in claim 61, the second inlet is arranged to direct the second fluid in a generally upward direction (claim 52).

Accordingly, not only are the inventions highly related, but the Examiner will be required to search the same references for the claims of both Groups. Consequently there will be no undue burden on the Examiner for searching and examining the claims of Group II along with the claims of Group I.

The claims of Group III, claim 68-78, likewise, relate to a method that is highly related to the method of the claims of Group I and Group II. Claim 68 is an independent claim which contains many of the limitations of the independent and dependent claims of Groups I and II. Claim 68 is drawn to a method of oxygenating blood by extracorporeally mixing blood and an oxygen-supersaturated fluid, classified in class 422, subclass 44. The blood oxygenation method of claim 68 is highly related to the method for forming a gas-enriched fluid of the claims of Group I and the method for mixing blood and a gas-supersaturated fluid of the claims of Group II. All three groups of claims address the liquid-to-liquid transfer of a gas, in many of the claims specifically oxygen, from one fluid to another fluid, which in many of the claims is specifically blood. The various combinations of the features of the particular claims may be different, but the overall methods are the same and result in the same effect, the liquid-liquid transfer of gas.

As written, the claims of Group I and the claims of Group II do not require the withdrawal or return of blood from the vasculature of the human body. The method could in all groups of claims therefore be performed extracorporeally. Applicants' therefore believe that the claims of Groups I and II should be classified as the claims in Group III, in class 422, subclass 44. If so classified, Applicants believe the inherent relatedness of the claims would be obvious and the propriety of searching and examining all the groups of claims together would be apparent.

Accordingly, Applicants request reconsideration and withdrawal of the restriction requirement and examination of all the claims presented in this application.

Respectfully submitted,

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